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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,153	06/30/2005	Hajime Okura	P28124	4378

7055 7590 04/27/2009

GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER	
PEREIRO, JORGE ANDRES	
ART UNIT	PAPER NUMBER
3743	

NOTIFICATION DATE	DELIVERY MODE
04/27/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary	Application No.	Applicant(s)	
	10/541,153	OKURA ET AL.	
	Examiner	Art Unit	
	JORGE PEREIRO	3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/27/08*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5 and 8-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8 and 9* is/are allowed.

6)☒ Claim(s) *1,2,5,10 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 1 recites the limitation: "and an opening/closing valve of this pipeline are arranged at, of a front surface side and a rear surface side of the mist eliminator, at least the front surface side." It is unclear whether Applicant is referring to the location of the valve or the pipeline in relation to the mist eliminator. Furthermore, it is unclear whether said valve or pipeline should be located at a front surface of ***or*** a rear surface of ***or*** either surface ***or*** at a minimum at a front surface of said mist eliminator. Further still, it is unclear what surface constitutes the front or rear of said mist eliminator. Based on the foregoing the claim is indefinite. In the interest of advancing the prosecution of the present application the Examiner interprets the quoted limitation as claiming the section of the pipeline comprising the spray nozzles as located at either the front surface or back surface of said mist eliminator, with the front surface being defined as that surface contacted first by the exhaust gas in the normal operational direction of flow of the exhaust gas processing device.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

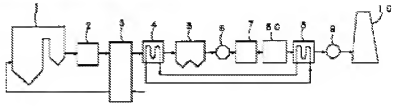
7. Claims 1, 2, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication JP 06-238127 to Katsube (hereinafter "Katsube") in view of Japanese Patent Publication JP 2001-074229 A to Ishizaki et al. (hereinafter "Ishizaki") and US Patent 5,648,048 to Kuroda et al. (hereinafter "Kuroda").

8. In re Claim 1, Katsube discloses all of the claim limitations (*see admitted Prior Art; Applicant's figure 6*) except for a heat suppression device for suppressing dissipated heat from the nonleak-type gas-gas heater reheater is arranged in an exhaust gas duct between the mist

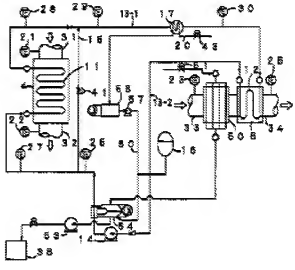
eliminator and nonleak-type gas-gas heater reheater, the heat suppression device comprising one or more of the following configurations: (a) a configuration wherein the exhaust gas duct between the mist eliminator and the nonleak-type gas-gas heater reheater is provided with a blow- off device configured to discharge heated gas from the inside of the exhaust gas duct to the outside of the exhaust gas duct; and (b) a configuration wherein a thermometer for measuring ambient air temperature of the inside of the exhaust gas duct is located in the exhaust gas duct between the mist eliminator and the nonleak-type gas-gas heater reheater, and a spray nozzle pipeline for washing at least one of an element of the mist eliminator and an exhaust gas duct inner wall surface and the periphery thereof with a washing liquid, which is activated when the thermometer reads a temperature greater than or equal to a set temperature, and an opening/closing valve of this pipeline are arranged at, of a front surface side and a rear surface side of the mist eliminator, at least the front surface side.

9. Nonetheless, with reference to figures 1 and 3 below, Ishizaki teaches a flue gas treating processor and method of operating the same with a configuration wherein a thermometer (23) for measuring ambient air temperature of the inside of the exhaust gas duct (33) is located in the exhaust gas duct between the mist eliminator (*not shown but discussed, see paragraph 0003*) and the nonleak-type gas-gas heater reheater (8) for the purpose of regulating the exhaust gas temperature of the flue gas treating processor.

Ishizaki [図3]

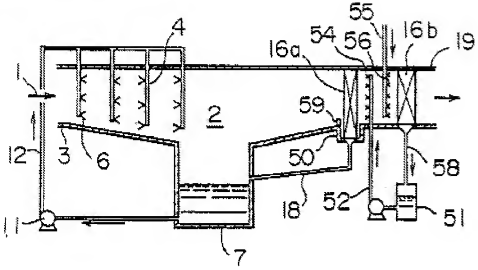


【図1】



10. Furthermore, with reference to figure 32 below, Kuroda teaches a wet-type flue gas desulfurization plant with a spray nozzle pipeline (52, 55) for washing at least one of an element of the mist eliminator (16a, 16b) and an exhaust gas duct inner wall surface and the periphery thereof with a washing liquid, and an opening/closing valve (a pump acts as the opening and closing valve; *see* col. 26, lines 39-41) of this pipeline are arranged at, of a front surface side and a rear surface side of the mist eliminator, at least the front surface side (*see figure 32 below; see also the - 35 USC § 112 rejection above*).

Kuroda FIG. 32



11. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Katsube wherein a heat suppression device for suppressing dissipated heat from the nonleak-type gas-gas heater reheater is arranged in an exhaust gas duct between the mist eliminator and nonleak-type gas-gas heater reheater, the heat suppression device comprising a configuration wherein a thermometer for measuring ambient air temperature of the inside of the exhaust gas duct is located in the exhaust gas duct between the mist eliminator and the nonleak-type gas-gas heater reheater, and a spray nozzle pipeline for washing at least one of an element of the mist eliminator and an exhaust gas duct inner wall surface and the periphery thereof with a washing liquid, which is activated when the thermometer reads a temperature greater than or equal to a set temperature, and an opening/closing valve of this pipeline are arranged at, of a front surface side and a rear surface side of the mist eliminator, at

least the front surface side as taught by Ishizaki and Kudora, since a modification would provide a means to monitor said exhaust gas temperature and thereby regulate the frequency of washing spray emanating from said spray nozzle pipeline for the dual purpose of cleaning said mist eliminator and affecting exhaust gas temperature.

12. In re Claim 2, Katsube in view of Ishizaki and Kudora discloses all of the claim limitations including wherein a steam-gas heater (50; Ishizaki) is provided in the exhaust gas duct between the mist eliminator (*not shown but discussed, see Ishizaki, paragraph 0003*) and nonleak-type gas-gas heater reheater (8; Ishizaki), and a heat suppression device (52, 54, 55, 56; *see* Kudora, figure 32) for suppressing dissipated heat from the steam-gas heater is provided in the exhaust gas duct between a mist eliminator (16a, 16b; Kudora) and steam-gas heater (50; Ishizaki).

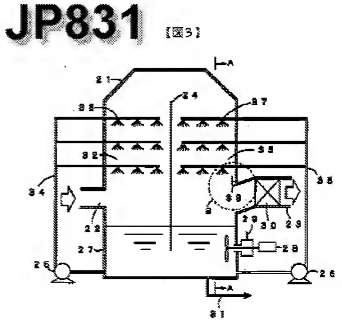
13. In re Claims 10 and 11, Katsube in view of Ishizaki and Kudora discloses all of the claim limitations including wherein the heat suppression device further comprises a configuration wherein at least one of a heat- resistant resin material and a corrosion preventive lining material resistant to dissipated heat from the nonleak-type gas-gas heater reheater during a shutdown of the absorption tower is provided on at least one of an element of the mist eliminator, an absorption tower outlet duct, an exhaust gas duct between the absorption tower and mist eliminator, and an exhaust gas duct between the mist eliminator and the nonleak-type gas-gas heater reheater (*see* Katsube, *paragraph 0005*).

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsube in view of Ishizaki and Kudora as applied to claim 1 above, and further in view of Japanese Patent Publication JP 2001-327831 A to Ishizaki (hereinafter "JP831").

15. In re Claim 5, Katsube in view of Ishizaki and Kudora discloses all of the claim limitations except for wherein the absorption tower is a two-chamber-type absorption tower provided with (a) a circulation tank for retaining of an absorption liquid, and (b) spray nozzles in respective regions, while an inlet duct for introducing exhaust gas discharged from a combustion device such as a boiler in almost a horizontal direction and an outlet duct for discharging exhaust gas in almost a horizontal direction are provided above this circulation tank, an exhaust gas channel is provided between the inlet duct and outlet duct, a partition plate stood in a vertical direction having an opening portion at a ceiling portion side to divide this exhaust gas channel into two chambers of an inlet duct side and an outlet duct side is provided, and an ascending current region where exhaust gas introduced from the inlet duct flows upward and a descending current region where exhaust gas flows downward toward the outlet duct after reversing at the opening portion of the ceiling side are formed by this partition plate, so that an ejecting absorption liquid slurry makes countercurrent contact with exhaust gas in the ascending current region and makes parallel-current contact in the descending current region.

16. Nonetheless, with reference to figure 3 below, JP831 teaches a wet type exhaust gas desulfurizer wherein the absorption tower (21) is a two-chamber-type absorption tower provided with (a) a circulation tank (27) for retaining of an absorption liquid, and (b) spray nozzles (35, 37) in respective regions, while an inlet duct (22) for introducing exhaust gas discharged from a combustion device such as a boiler in almost a horizontal direction and an outlet duct (23) for discharging exhaust gas in almost a horizontal direction are provided above this circulation tank, an exhaust gas channel is provided between the inlet duct and outlet duct, a partition plate (24) stood in a vertical direction having an opening portion at a ceiling portion side to divide this

exhaust gas channel into two chambers of an inlet duct side and an outlet duct side is provided, and an ascending current region where exhaust gas introduced from the inlet duct flows upward and a descending current region where exhaust gas flows downward toward the outlet duct after reversing at the opening portion of the ceiling side are formed by this partition plate, so that an ejecting absorption liquid slurry makes countercurrent contact with exhaust gas in the ascending current region and makes parallel-current contact in the descending current region. (*See* figure 3 below).



17. Therefore, Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Katsube wherein the absorption tower is a two-chamber-type absorption tower provided with (a) a circulation tank for retaining of an absorption liquid, and (b) spray nozzles in respective regions, while an inlet duct for introducing exhaust gas discharged from a combustion device such as a boiler in almost a horizontal

direction and an outlet duct for discharging exhaust gas in almost a horizontal direction are provided above this circulation tank, an exhaust gas channel is provided between the inlet duct and outlet duct, a partition plate stood in a vertical direction having an opening portion at a ceiling portion side to divide this exhaust gas channel into two chambers of an inlet duct side and an outlet duct side is provided, and an ascending current region where exhaust gas introduced from the inlet duct flows upward and a descending current region where exhaust gas flows downward toward the outlet duct after reversing at the opening portion of the ceiling side are formed by this partition plate, so that an ejecting absorption liquid slurry makes countercurrent contact with exhaust gas in the ascending current region and makes parallel-current contact in the descending current region as taught by JP831, since such a modification would enhance the desulfurification process of said absorption tower.

Allowable Subject Matter

18. Claims 8 and 9 are allowed.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please see form PTO-892 (Notice of References Cited) attached to, or included with, this Office Action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JORGE PEREIRO whose telephone number is (571) 270-3932. The examiner can normally be reached on Mon.-Fri. 9:00 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Rinehart can be reached on 571-272-4881. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kenneth B Rinehart/
Supervisory Patent Examiner, Art Unit 3743

Jorge Pereiro
Examiner
Art Unit 3743

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